



Medium-Sized Cities and the Dynamics of Creative Services

Claude LACOUR

&

Sylvette PUISSANT

GREThA UMR CNRS 5113

lacour@u-bordeaux4.fr
puissant@u-bordeaux4.fr

Cahiers du GREThA
n° 2008-08

GREThA UMR CNRS 5113
Université Montesquieu Bordeaux IV
Avenue Léon Duguit - 33608 PESSAC - FRANCE
Tel : +33 (0)5.56.84.25.75 - Fax : +33 (0)5.56.84.86.47 - www.gretha.fr

Villes moyennes et dynamique des services créatifs

Résumé

L'objectif de la réflexion consiste à mieux connaître les performances des services « créatifs » dans des espaces urbains de dimension moyenne. Le développement d'activités hautement qualifiées (recherche, information, art etc.) dans une strate de la hiérarchie urbaine autre que celle des métropoles, interroge sur la définition des « villes moyennes » et sur leur signification au sein des systèmes urbains ; l'approche en termes de créativité et de métropolisation renvoie aussi à leurs contextes socio-économiques et à leur rôle dans la structuration d'un territoire. Basée sur l'expérience française, l'analyse tente de préciser la portée de l'effet taille de la ville qui, en tant que tel, peut jouer en faveur de la croissance des aires urbaines intermédiaires comme en leur défaveur.

Mots-clés : villes moyennes, métropolisation, services, niches, France

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Abstract

This paper examines the development of “creative” services (research, information, art etc.), located in medium-sized areas. Insofar as urban dynamics lead to extend the advanced services outside metropolises, particular attention is given to issues concerning the definition of “medium-sized cities”, and their significance regarding urban systems; the approach in terms of creativity and metropolization clarifies the incidence of their economic contexts and their structuring role within spatial frameworks. The findings presented in this paper are based on the experiment of French cities. They precise the meanings and the limits of the urban size effect, which can play in favour of medium-sized areas growth, and to their detriment as well.

Key words: medium-sized cities, metropolization, services, niches, France

JEL : J24 ; J44 ; R11 ; R23

Introduction*

Many geographical and socio-political elements differentiate the interest in regional and urban disparities in Europe (as in the United States), just like they distinguish planning and development policies. The aims and the expenditures in favour of urban zones do not share the same history and ambitions although the structures and the changes show similarities in the questions to solve as in the strategies to be engaged: urban sprawl and polycentrism (RICHARDSON, 2001; CATTAN, 2007), suburbs fragmentation, immigration, delocalization, downtowns revitalization, attractiveness, metropolitan competition versus networks etc.

In France, regional planning policies, which aimed at reducing the imbalance between Paris and other regions, were based on arguments related to dimensions phenomena and size effects. Indeed, the urban frame was (is) widely dominated by the capital-city, Paris, which required wilful policies in order to counterbalance a crushing supremacy: the ratio between the populations of Paris and Lyon, second urban area, is about 1 to 10. Thus, historically, regional policies were concerned with the cities starting from their size and their functions. They were concretized by more or less substantial measures aiming at the decentralization of tertiary activities and various equipments: firstly, in 8 metropolises, called “balancing metropolises” (in the 60s); thereafter, in medium-sized and small cities (during the 70s and 80s), which are typical of the French urban system (LACOUR and DELAMARRE, 2005).

We must specify here what we mean by « medium-sized ». In France, the scale defining the category will seem smaller in comparison with American or Japanese standards (HENDERSON, 1997¹; HENDERSON and WANG², 2007). French medium-sized urban areas concern places from 20 000 to 200 000 inhabitants. In this paper, two sub-categories are used: 100 to 200 000 inhabitants (large medium-sized urban areas) and 20 to 99 999 inhabitants (medium-sized urban areas).

The operational orientations, which are explicit or not according to times, have generated an important literature (BERG *et al.* 1982). An essential part relates to the links between the stages of cities growth and the life cycles of regional socio-economic structures. The modes and the forms taken by these links are specified from a comprehensive point of view. One will evoke here, as example, the thesis on “growth poles” and their hinterland, whose impacts in terms of regional planning still exist in France. Indeed, the “poles of competitiveness” policy seeks to combine concentration of talents, innovating activities and development of new jobs in designated territories³. One must underline, more generally, the plentiful literature on the changes of cities economy since 20-30 years, and the evolutions of the nature of employment and activities in

* Paper presented at NARSC 2007 Conference (North American Regional Science Council) Savannah, GA, November 7-10

¹ Concerning US population, V. HENDERSON (p.585) uses the level 50,000 to 0.5 million to qualify medium size metro area. For Japan he notes «...the role of medium-size cities (100,000 to 0.5 million)... ». It would be crucial to define and compare the scales of medium-sized cities all over countries.

² In their city growth analysis, the authors “present a comprehensive picture of world urbanization in cities over 100 000...” (p.287). Medium size category concerns 1 to 3 millions population “accounting for 29% of the population of all cities over 100 000.” (p.288).

³ 71 are noted for 2007.

metropolitan areas, which are dominated by the diffusion of all categories of services. Many studies have showed the existence of urban and regional disparities and, in particular, the concentration of high skilled services in metropolises (GILLEPSIE and GREEN, 1987; JULIEN, 1995; DIACT, 2007).

Why an interest for analysing medium-sized cities and “creative” activities? In France, during 20-30 years, regional policies have primarily considered cities through their size and their attractiveness: first, the largest ones, then the medium-sized ones and finally the smallest ones. It was a “national” policy, decided by the central State level and based on reflections coming from an influent agency, called DATAR⁴. It consisted, essentially, in developing actions of equipment and decentralization of jobs from Paris to the “Province”. Since the 90’s, the conditions of the global economy are radically different from the old economic context. Cities are faced with more and more competition and they experiment (ACS, 2006) new factors of growth, new activities, new organisational methods of production, and new qualifications for jobs etc. Basically, the central State is less and less present in regional planning. Urban policies are driven by cities themselves: they define economic strategies, they manage regeneration programs, they create a public image and they develop a competitive service economy.

What we are arguing concerns the relationship between services and size of urban areas. We analyze, more precisely, the behaviour of some high skilled services located in other levels of the urban hierarchy than those of large cities (DANIEL *et al.*, 1992; GALLOUJ *et al.*, 2006). Since a long time, academics and policy makers recognize, indeed, that advanced services, producer services, in particular, are inextricably linked with the dynamics of regional development; they are the main driving forces of tertiary sector growth, estimated in number of jobs as in value added (JULEFF, 1993; BEYERS and LINDAHL, 1998; LACOUR, 1998; LÉO and PHILIPPE, 1998; LÉO *et al.*, 1999; MOYART, 2006). In addition, characteristics related to financial, legal, business and professional activities, such as concentration, innovation or flexibility, enter into the definition of the process of metropolization (LACOUR and PUISSANT, 1999), which also concerns medium-sized cities. Analysing the same activities in medium-sized urban units leads to explore the changes of their socio-economic structures and, consequently, their position in the urban system (HENDERSON, 1997; POLÈSE and SHEARMUR, 2005). The key concerns running through the paper are: attractiveness in terms of economic renewal, creativity and new polarisations. They are illustrated by a single case and they must be seen as an opening to more case studies: we are conscious to have drawn too many lessons from the French example!

The idea explored is the following: beyond the great stability of urban and economic hierarchies (GUÉRIN-PACE, 1995; EATON and ECKSTEIN, 1997; HENDERSON, 1997; DAVIS and WEINSTEIN, 2002), qualitative modifications can exist, which “refresh” the content of urban systems. They are partially driven by a subtle process of diffusion of innovations and information technologies from large to small cities (BRETAGNOLLE *et al.*, 2007). Then, with basic methods, we try to provide such an understanding in terms of “upper metropolitan

⁴ DATAR, *Délégation à l’Aménagement du Territoire et à l’Action Régionale* (Regional Planning and Development Agency), which has been created in 1963. Today, it is named DIACT, *Délégation Interministérielle à l’Aménagement et à la Compétitivité des Territoires* (Interdepartmental Agency for Regional Planning and the Competitiveness of Territories).

functions” so that the way in which the economy of medium-sized areas changes towards creativity can be assessed.

The paper is organized as follows. Part 1 develops a theoretical and operational review of the literature on the role of services and metropolitan functions in renewing medium-sized areas. Part 2 describes the geographical framework and the empirical results concerning “upper metropolitan functions”, which are observed at medium-sized levels. Part 3, as a conclusion presents remarks about the significance of medium-sized areas facing the challenge of territorial planning, urban development and service economy.

1. City attractiveness through high skilled services and metropolitan functions: a theoretical and operational overview

Today, it can seem curious to pay attention to medium-sized cities of which it is hard to give a definition as for the city, more generally (PARR, 2007). But, facing the literature presenting the metropolises as “the” places of urbanization and concentration, we agree with HENDERSON and WANG’s thesis (2007) when they demonstrate that “The spread of relative city sizes remains constant over time, suggesting on-going roles for cities of all relative sizes” (p.291). Starting from French examples, another perspective supporting this issue will be presented.

1.1. A renewed interest for medium-sized urban areas

During the 70s, at least in France (LAJUGIE, 1974; COMMERÇON and GEORGE, 1999), medium-sized cities constituted a substantial field of political and theoretical concerns, (balance of territory, integration of rural populations, relays for national and regional actions, efficiency in terms of cost of urban growth) but they hardly seem during the thirty last years to have been the subject of particular analyses as a specific urban category. Some cities could be evoked as examples of particular success linked to delocalization of firms (Valenciennes), to modernization of museum (Albi, Montauban) or to international festivals (Avignon, Orange). More often, one spoke about them for closings projects concerning private or public firms or services as Courts of Justice or military bases. They could be closed for rationalization and efficiency reasons, appreciated by reference to a critical size considered to be often insufficient, and more generally for the anthem to the large size. The traditional question on optimal size (RICHARDSON, 1972; CAPELLO and CAMAGNI, 2000) seems to condemn medium-sized cities, those from 20 to 200 000 inhabitants, particularly the smallest and the remotest areas in terms of administrative infrastructure, geographical accessibility or social amenities. A medium-sized city of 50 000 inhabitants is not comparable and does not play the same functions if it is part of a millionaire metropolitan area or if it is localized at a certain distance (100 km) of a metropolis (300 to 500 000 inhabitants).

A great part of recent works on urban dynamics was and remains marked by the attention paid to the process of metropolization, while simplifying, to Northern very large cities that order the world and control globalisation, even if other research suggest various types and levels: a global, a continental metropolization or a metro-ruralization (DUBOIS-TAINE and CHALAS, 1999; TAYLOR *et al.*, 2002; LACOUR *et al.*, 2003; LACOUR *et al.*, 2005; LACOUR and PUISSANT, 2007). Thus, this perspective lead to focus interest on the modes of command, control, coordination, and creation of codes that constitute processes reinforcing

the capacities of some cities on the worldwide economy, powers that are based on arguments evoked by S. SASSEN (2001), in particular. These arguments are taken again, commented on, sometimes discussed but they give little hope to medium-sized cities: at best they are forgotten; in the worst case, one regards them as appendices, factories floors, spatial-relays of cities controlling the world: back-yards cities of large ones (FRIEDMAN, 2006), as are the emergent countries whose production costs justify delocalization at long or small distances. Facing the new division of labour, small and medium-sized areas, at the tail of the classification in terms of population, would gradually lose the identity of their attributes, and their autonomy to become functional complements of large cities, at lower costs. The firms find there equipped areas, skilled and available labour markets and the executives profit from amenities related to living conditions. These cities have generally good accessibility and adequate communication networks. Often, firms are close to local and also large metropolitan markets. Lastly, the local political authorities are extremely attentive to their needs and strongly support them in their locations.

In the same perspective, other debates on urban questions have developed, occulting the attention to medium-cities, even if they are concerned. Within ACS's meaning, "The Growth of Cities" (2006) renews theoretical issues. Actually, beyond the title, a crucial part of economic development theory is questioning: cities can be creative, winners or losers. A priori, large cities, those that are and make metropolization alive, find in the suggested arguments additional reasons, when Northern medium-sized cities, without speaking about Southern cities, can understand a complementary insurance of their exclusion of attractive processes (VAN DEN BERG *et al.*, 2005). When Z. ACS presents new theory of growth, new ecogeography, and new innovation economy, he underlines and reinforces arguments in favour of large urban areas:

- Concentration of decision-making powers and functions of command in large entities; concentration of clusters and agglomeration effects in some sites that profit from all forms of capital: social, cultural, decisional, political, infrastructural, which we call "clusties", clusters in and throughout cities (LACOUR and GASCHET, 2007).

- Concentration of specialized activities, often linked to advanced services, with the delocalization of low value added productions or those requiring a lot of workforce; a concentration of high level diversified activities too, solidifying "nursery cities", "creative cities" (DURANTON and PUGA, 2001; FLORIDA, 2002; 2005) and "cities of knowledge".

- Reinforcement of international networks between few mother-cities (metropolises) and intra-national, intercontinental or international relays.

The French policy, called "poles of competitiveness", is an interpretation of clusters à la PORTER, re-examined and enriched by the analyses on Marshallian or "Italian" industrial districts. The poles location shows the determining role of metropolises within the national urban frame: Paris, Lyon, Bordeaux, and Toulouse. The hierarchy of cities is copied from the hierarchy of producer services as personal services and reciprocally....

The attention to international competition leads to an exacerbated benchmarking and to the revival of morphological metro-centralities. One wants to reactivate historical centres and reinforce the attractiveness of the central city and its direct influence zone. Another aim consists in consolidating domination over the more or less distant medium-sized cities for a better efficiency: more one seeks to be part of international cities more one strives to dominate its own centre and to strengthen its DIXIT-STIGLITZ local monopoly. Globalization orders to re-find a regional domination. This logic leads to select research on decentralization or reorganization models (LEE, 2007) or on a very in vogue topic that

opposes the comparative advantages of mono or polycentric urban areas (CATTAN, 2007), of specialized or diversified areas.

Then, the cause would be heard, would the medium-sized cities be abandoned by urban analysis, regional development and political concerns? The predilection for the process of metropolization and the highly skilled functions would justify that one does not pay much attention to them.

However, there is a renewed interest for these cities that are difficult to define: it is not sufficient to say that they are not metropolitan - too small - nor small towns (LACOUR and PUISSANT, 2007), related to an agricultural and rural environment: this time... too large, another meaning for “die Zwischen Stadt” (SIEVERT, 1997; LACOUR and PUISSANT, 1999). Nevertheless, the French political powers rediscover these urban areas insofar as they represent from a quarter to a third of the French population⁵. This ratio is observed in other European countries and in the United States, even if the meaning of medium size and the various thresholds are discussed... What could be a medium-sized city in China?

The municipal governments of medium-sized areas, according to the principle of plurality of mandates, are appointed senators, presidents of “*Conseils Généraux*”; they have a strong influence that gets along national level (HENDERSON and WANG, 2007). They want to be heard because the idea of medium-sized city has a negative connotation, between metropolitan city and large town evoking a local identity and an attachment of populations. In parallel or complement of “poles of competitiveness”, the French government has decided a new policy called “poles of Rural Excellence” to support “clusters of excellence” that, overall, concerns few medium-sized areas. The word “medium” is still negatively perceived insofar as it means an urban situation without true statute (neither metropolitan, nor rural), which would be unfavourable to recognition and attractiveness.

Complementary questions can be added, concerning what one could call the crisis of medium-sized cities. For example, a lot of them have been marked by the centralization of the French administrative and political system. They were related to central powers, and they were endowed consequently, during the 19th century (even before under the Royalty) with “head-down functions”, assumed by the *Préfet*. These administrative functions were completed with medical, banking, legal, schooling and educational activities.... The needs for a rationalization of public services locations have led to various closings. The will of the central State to withdraw certain of its functions often concerns medium-sized cities. Closings of industrial activities inherited from the 19th or 20th centuries are also observed: paper manufacturing, machine, foods manufacturing, tobacco, leather and textile industries, for example. A lot of them are gradually de-located towards North Africa countries, China or Central and Eastern Europe countries. The resilience of these activities is low, the weight of closings is heavily felt, and the capacity of compensation is limited. According to the atmosphere, the lessons drawn from current theorizations and from the cases of large cities and villages... again, medium-sized urban areas are searching for models of development. They can promote green or sustainable tourism, highly skilled producer services, personal services, and attractiveness based on knowledge, cultural activities and, more generally, on amenities related to quality of life. In addition, according to the words of CAPELLO and CAMAGNI (2000, p.1490): “Medium-sized cities appear to have greater endogenous capacity to keep social, economic and environmental costs under control”.

One can smile when the French Federation of Mayors of Medium-sized Cities (2006) publishes “Happiness of the cities” and presents their features, ambitions and realities: in

⁵ The ratio depends on the thresholds of population that are selected.

fact, they would be human cities (opening up), welcoming cities (lifestyle), citizen cities (associating the inhabitants), responsible cities (preserving the environment), and dynamic cities of which the attractiveness should be reinforced. One understands that the discourses look like self-promotion, and the ambitions are clearly those of worldwide capitals as those of all the villages in the world... But the arguments that could penalize them (too much small, too much large...) can also play in their favour.

They have admissible critical sizes to maintain or attract services: sewerage, domestic waste collection and processing, public transport, schools, theatres, libraries (FMVM, 2006). They support small-sized universities whose quality and the links with local firms are exemplary (*Le Monde*, 12/07/2007), thanks to the direct implication of municipal governments and the will to take part in local development. They offer to firms real and financial advantages without forcing those that look at metropolitan locations. One refinds here the role of institutions on urbanization, highlighted by HENDERSON and WANG (2007) that allows “smaller cities to compete more freely for firms and residents” (p.309).

If medium-sized areas discover the difficulties of large units regarding commuting, social housing, segregation, insecurity⁶, land prices, loss of identity in retail matters and local services, the constraints remain... medium or even low. On the opposite, they claim to have comparative advantages, regarding negative externalities that moderate the metropolitan virtues and the superiority of large size. Insofar critical comments are expressed against large areas -“bad loved cities” (SALOMON, 2005) -, we can hear some praise for medium-sized cities. Are they real cities of day-to-day life and not “cities without cities” (KOLL-SCHRETZENMAYR, 2007)? RACINE (1999) suggests the terms “ordinary city” with a positive meaning. COMMERÇON and GEORGE (1999) prefer “transition cities”, which have to be defined as any transition (AGUILERA *et al.*, 2005).

With increasing autonomy, these units develop co-operation and reach admissible size thresholds. On average⁷, a “*communauté d'agglomération*” covers 18 “*communes*” each one having about 90 000 inhabitants; those belonging to a “*communauté de communes*” have about 26 000 inhabitants in a set of 13 “*communes*”. The two cases illustrate the heterogeneity of medium-sized areas. They predetermine the existence and the nature (quantity and capacity) of services, but they also stress their local and regional importance. The partial efficiency of base theory that would be all the more relevant as the size remains modest could be evoked here. It leads to revive debates on the large size, balanced by the taking into account of negative externalities. Arguments related to identity and urbanity, as well as to positive externalities, generally exist in medium-sized areas. They strive to offer specialized activities that differentiate them from large entities. They also generate diversity inside which the local community has often a strong impact.

1.2. Services in Urban Analysis

The city is a place that concentrates the activities; the city is a productive organization of services, it is born, based and structured by services. Some are specialized, historically they appear according to physical characters: rivers, coastal versus hinterland locations (KRUGMAN and ELIZONDO, 1996; JANSSON, 2006; DJELLAL and GALLOUJ, 2007), natural endowments (forests, mines); they develop with technological improvements, the rise of needs, military reasons, religious (the “Holy Cities”) or political motives (BOULIANNE *et al.*, 1998; HENDERSON and WANG, 2007). The city is a place of powers, a place attracting people at a given time, or which seems crucial to incarnate the autonomy of Central powers,

⁶ as “American medium-sized cities that are touched by the renewal of violence”, *Le Monde* 28/09/2007

⁷ The example concerns medium-sized cities that are affiliated with the FMVM.

compared to other cities often larger and richer: Bonn at the end of the Second World War to forget Berlin, Brasilia to be unaware of Sao Paulo and Rio etc. But, one can also add historical dominant cities because of their specializations, which monopolized a type of services through the control of technology, supported by financial organizations and the management of logistics: Venice, Bruges, Amsterdam, Hanse's cities were already models of "Global Cities" as powerful as those which one evokes today. Singular examples, as London and Paris, control concentrations and numerous services. They are additions, more exactly, permanent inter-connected and self-reinforcing sets of specialized and diversified services that are understood within the meaning of MAR or JBR externalities (ACS, 2006).

The city is even more than a whole of markets, places of exchanges, inter-connections, administrations, companies, museums, monuments etc. The city is service: a place of concentration, development, attraction and diffusion of services. Basically, it is a constant through the ages, even if the 19th and 20th centuries industries have marked a lot of places. However, "city and services always had dependent part" (MAY, 1994, p.3). Two aspects of the interrelations between city and services can be considered:

- Services base and structure the city. They often do it according to the "causes of first nature", following P. KRUGMAN's terms, and the resultant organization is classically described by central places theory. The organization is marked by a population of which the mass and density order with the distance, and the nature of services supply: at the village level, a bar, a newspapers shop (may be school is already closed); at the worldwide metropolis level, functions of command, coordination, control and creation of codes (finance, fashion, technology) are present. Thus, one finds the debates on the definition and the ranking of international cities, world cities or mega-cities. The "urban multiplier", presented in central places theory, ensures an increasing hierarchy of services and markets areas with the cities size in the logic of hubs. "Central Places" theory also shows that space is covered as a whole (CHRISTALLER, 1933). Following the formula, space has "horror of vacuum", and services will adapt, move and spread in order to cover all parts of the territory. The effects of motorization, the differentiated composition of populations, their mobility and their ageing modify the demographic structures that give growing importance to medium-sized areas (BROOKS, 2004). New modes of productive organization require producer services, which can support this category of cities: to urban hierarchies correspond hierarchies of services. They are reinforced by the political and administrative systems, which are based on "head-down functions" that firms always need. A *Préfecture* in a medium-sized area (30 to 100 000 inhabitants) implies an high school, a Court of Justice, various agencies (Agriculture, Public Works, Finance etc.) often a Bishop, always a jail and a public hospital.

Facing the difficult search for specific functions, J. LAJUGIE (1974, p.149) suggested five characters. Primarily, medium-sized cities occupy intermediate situations; they are relays between "large cities" and "congested urban zones". Their functions concern "easy relations with other cities, a close connection with the rural world" (p.150). Services have partly shaped urban forms according to monocentric principles; the centre is marked by the *IIIème République* policy, with a weekly market that practically all cities and villages rediscover. Services structure the city and give components of a complete entity, with a lot of functions that seem out of adjustment with the metro hierarchy. Services are founders of urban hierarchy as they command economic and administrative systems. This dominant model implies that banking, financial and trade services are copied on the same frame.

The parallelism between the two hierarchies is discussed. The Swedish school of diffusion concerning the trajectory of an innovation, (from metropolis to medium-sized city

then small town and village), is not valid any more. Today, with the generalized information system and the Internet, everyone can profit from all services, at least in theory, insofar as a minimal density of customers exists. Technically, it is possible to have the same services everywhere (or almost). Economically and financially, the selectivity operates, it can do it as well in favour of medium-sized areas as against them: “services are in dense areas; manufacturing is not” point out GLAESER and KOHLHASE (2004, p.25). But producer services also follow populations, they appreciate the markets for common goods, and they find relevant niches.

- Services base and structure the process of metropolization. For a large part, the former means the end of urban, economic, financial and cultural centralities that were primarily defined within national frameworks. It is rather the reinforcement of centralities by globalization and decentralization of competences that calls into question the role of downtown areas, the regionalization movement that modify hierarchies, often inherited from the Fifties, indeed before (NOYELLE, 1994, p.222). The sophistication of services, their capacity to operate in line with shifted temporalities lead to analyze metropolization by services and metropolization throughout services (VAN WINDEN *et al.*, 2007). That means a reinforced concentration of crucial services in singular places, a reduced part of a reduced number of cities itself: City of London, Wall Street in New York, and La Défense in Paris etc. That also means easier de-localizations of services than before, since the role of public powers is reduced and the public-private partnership is increased. The approach in terms of front and back offices is used to mobilize downtown areas, first suburbs, second and third rings and more or less distant zones. Major changes mark rural areas, which ask for quantity and quality related to “urban” services. In medium-sized areas, one wants to have the same supply; services structuring and organizing medium-sized urban areas...

It would remain to discuss if the models of central places theory or base theory have become completely obsolete and inapplicable: the call to network city theory (CAPELLO and CAMAGNI, 2000), the attention to polycentric areas, and to communication and information technologies do not seem, necessarily and automatically, to condemn central places theory (CAPELLO, 2006). Metropolization by services and services by metropolization call into question the nature and the location of activities that metropolises offer, especially services that make their identity and attractiveness.

In this exacerbated fear to become standard cases, medium-sized areas have favourable arguments. Then, to understand the dynamics of services in these places, one will seek to analyze possible trajectories among the following situations:

1/Classically, the organization of central places would still play, and one would be in a shifted homothetic situation: some services, yesterday reserved for metropolises, are now available in medium-sized cities. They correspond to an adjustment policy in order to level their supply by taking model on large metropolises. They can seek selective functions or services, which one will propose “qualitative jumps” in order to get a local monopoly. Some conclusions from urban analyses show that medium-sized cities have a great capacity for adapting to new systems (COMMERÇON and GEORGE, 1999). They can adopt strategies according to the private actors and the degrees of co-operation or conflict with other medium-sized areas, and those constituting their immediate hinterland. These aspects can be formalized (POUYANNE *et al.*, 2007) in a model where the growth of cities is linked to inter and intra-sectoral relations with a dominant metropolis, other medium-sized cities, internal connexions and the distance to the metropolis. The first results give evidence that producer services and data processing services are linked to those located in the metropolis; here, the hierarchical logic remains valid. There is a positive size effect, a trend according

to which data processing services in the smallest medium-sized cities catch-up other urban levels. The effect of “spatial shield” in favour of these urban zones tends to blur according to the qualification and the technological complexity of services. However, they can relate to specific niches, and they can be specialized in high technology activities (the ICT, in particular). Then, it is less of imitation, of adjustment about which it is necessary to discuss, than of inventiveness, creativity aiming at substantial qualitative jumps: a medium-sized city (Agen, for example) will become a national or a European centre for specific domains (INDL, ENAP). The advantages of large size blur facing reputation, quality of service and productivity of capital and labour factors.

2/ Insofar as they are concurrent and tend to imitate metropolises, medium-sized areas are also confronted with small towns and rural areas, located in their influence zones. Two opposite trajectories can be highlighted:

- *Trajectory A* is favourable to medium-sized city. It runs to the detriment of geographical components of the area by concentration of functions. Urban sprawl leads to the decline of specificities, especially agricultural specificities and their related services. The medium-sized area, (centre and immediate periphery), gains the traditional functions of components (in terms of retail-trade, day-to-day services, maintenance, craft industry etc.) as well as new trade functions which one finds in metropolises only (large specialized shops such as FNAC, Virgin, Cultura). Other functions appear, which refer to university activities, and the revival of cultural and tourist services. Thus, technological parks, small firms in the agro-foods industry, biotechnologies, information and artistic activities emerge and develop.

- *Trajectory B* is favourable to components or to urban units, which are about 20 to 30 km distant from the medium-sized city. In that case, the city both seems the victim of a loss of “head-down functions” and a growing efficiency of small towns or neo-rural villages. Functions and services related to modernity emerge in these “communes”; co-operation allows the maintenance of school systems, transfer of knowledge services and training, as regards ICT, for example. Industrial activities remain, and they are modernized to reach worldwide markets. Other more or less specialized activities can also be maintained, and craftsmen associations constitute an effective answer to increasing and differentiated requests from residents or firms as regards housing, transports, health care.... That are strategies ordered by the process of metropolization.

The second part of the paper starts by looking at some empirical facts and features related to “upper metropolitan functions” in order to identify the dynamics of creative services in French medium-sized urban areas.

2. Creative services in French medium-sized cities: empirical facts and features

The last decades have showed intense competition between metropolises, an acute competition also between city-centers and rings, which results from changing urban forms, and economic globalization. Empirical studies on urban growth have underlined how the economic development of large metropolitan areas reduces or transforms the scope of medium and small cities. They are under continuous pressures, risks of economic decline, and social marginalization. On the opposite, changes in their attractiveness are highlighted by the results of censuses and the development of networks between medium-sized areas and between cities, more generally (PUMAIN *et al.*, 2006). If they do not profit from the effect of mass and density due to a large size, they can prove creative and appealing, and they can offer location advantages compared with negative amenities, higher urban rents

and congestion effects, observed in large urban zones (CAPELLO and CAMAGNI, 2000; LACOUR and PUISSANT, 2007). Concerning urban growth issues, we have to keep in mind the heterogeneity of changes (GLAESER and SHAPIRO, 2003) and, one moment, we must forget the primacy of large cities (GARREAU, 1991; SASSEN, 2001).

2.1. Urban Growth in France during the 1990s

The geographical areas of reference, more and more frequently used in France, are the “*aires urbaines*”. They have been introduced in the middle of the 90’s and applied at the time of the last Census of population (1999). As defined by the INSEE⁸, they are multi-cities units -formed with “*communes*”⁹-, which correspond to local labour markets and economic attractiveness. They are composed of one urban pole (at least 5000 jobs) and adjacent “*communes*”, called “*péri-urbain*” ring. At least, 40% of the labour force population works in the “pole” or in the “ring”. Different from previous zoning, named “*agglomérations urbaines*”, the new areas seem better suitable for planning purposes. Table 1 provides the size distribution of French urban areas in 1999 and show the typical importance (80%) of small and medium-sized areas in the structuring of the French territory. The data used in this paper are mainly compiled from the last French censuses of population.

Table 1: Structure of the French Urban System

Population (1999)	Urban Areas (Number)	%
> 1 000 000	4	1.1
500 000 to 999 999	10	2.8
200 000 to 499 999	28	7.9
100 000 to 199 999	36	10.2
50 000 to 99 999	59	16.7
20 000 to 49 999	119	33.6
10 000 to 19 999	92	26.0
< 10 000	6	1.7
Total	354 ¹⁰	100.0

Source: Authors estimate.

In France, as in numerous countries, there is a substantial stability of the distribution by size of the urban population¹¹ for all the individual fluctuations of cities noted by the various population censuses (GUÉRIN-PACE, 1993). Since the 1930s and H. SINGER’s precursory paper, the literature on this topic is considerable as the diversity of approaches and the research of explanations by analogy: behavioural, physical, ecological formulations of the city size distribution (SUAREZ-VILLA, 1988), for example. Other works were directed towards a modelling of the cities distribution (PUMAIN, 1994; GUÉRIN-PACE, 1995; PUMAIN and ROBIC 1996), from tests for statistical regularity¹² and debates about the validity of ZIPF’s Law (BLACK and HENDERSON, 2003; IOANNIDES and OVERMAN, 2003; GABAIX and IOANNIDES, 2004; ANDERSON and GE, 2005) to approaches in terms of economic

⁸ INSEE, *Institut National de la Statistique et des Etudes Economiques* (National Institute of Statistics and Economic Studies).

⁹ “*Communes*” are the first local administrative and jurisdictional level of the French urban system.

¹⁰ The analysis concerns 352 continental urban areas (2 urban areas located in Corse are not included here).

¹¹ Whatever, the detail of the size scales.

¹² In the empirical literature, a consensus exists to recognize that PARETO distribution describes best the city size distribution in a country.

geography, scale economies or, more recently, in terms of complex systems (BRETAGNOLLE *et al.*, 2006). They have introduced other explanatory variables of the agglomeration process that are inspired by the location model of firms or by the changes in productive systems and technology: from standardized industrial production to the economy of services supply (EATON and ECKSTEIN, 1997; HENDERSON, 1997; BLACK and HENDERSON, 2003; DELGADO and GODINHO, 2004; HENDERSON and WANG, 2007).

The last censuses confirm the concentration of population in some urban zones: 42 urban areas upon 352 represent 68.7% of the French urban population in 1999. Decade by decade, French medium-sized areas represent, globally, the same share of urban population, about 30% during the forty last years. They concentrate a percent slightly higher than that of the capital-city, Paris (Table 2).

Table 2: Percent of Urban Population by Urban Area Size (1962-1999)

Urban Areas Size Categories	1962 %	1968 %	1975 %	1982 %	1990 %	1999 %
> 10 millions inhabitants (Paris)	26.0	25.7	25.3	24.9	25.1	24.9
Large U.A. > 200 000 inhabitants	41.5	42.1	42.6	42.9	43.1	43.8
Large medium-sized U.A. 100 - 199 999 inhab.	10.7	10.6	10.7	10.7	10.5	10.4
Medium-sized U.A. 20 – 99 999 inhabitants	18.3	18.1	18.0	18.1	17.9	17.6
Very small U.A. < 20 000 inhabitants	3.6	3.4	3.4	3.4	3.3	3.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors estimate from the INSEE censuses.

The stability of the distribution is not so clear for their component parts. Table 3 summarises the distributions and reports how the share of central population regularly dropped, leading to new ratios between central and peripheral areas.

Table 3: Population in central city and peripheral areas in France, 1962-1999

Urban Areas Size Categories	Central city %	(1st ring) %	(2 nd ring) %	Total%
> 200 000 inhab. 1962	49.2	33.6	17.2	100.0
100 to 200 000 inhab. 1962	46.9	25.5	27.6	100.0
< 100 000 inhab. 1962	56.7	20.6	23.0	100.0
> 200 000 inhab. 1999	37.3	41.3	21.4	100.0
100 to 200 000 inhab. 1999	40.0	29.2	30.9	100.0
< 100 000 inhab. 1999	51.1	25.3	23.6	100.0

Source: Authors estimate from the INSEE censuses.

Movements of decentralization towards peripheries lead to various kinds of urban forms (GARREAU, 1991; BINGHAM and KIMBLE, 1995; AGUILERA, 2002; COFFEY and SHEARMUR, 2002; GASCHET, 2002; BAUMONT *et al.*, 2004_a; BAUMONT *et al.*, 2004_b). Some examples (Table 3) illustrate the diversity of delocalization and urban sprawl as well as the extent of the decline of city-centres according to the size of urban areas.

The observable changes are characteristic of metropolitan processes:

- City-centres population in large metropolises (> 200 000 inhabitants) decreases (12 point), a loss which is compensated by respective gains of 8 points (urban poles of the first ring) and 4 points (peripheral areas, second ring).

- Medium-sized cities population (100 to 200 000 inhabitants) is characterized by a decline of 7 points for city-centres, which is compensated by a gain of 4 points (urban poles composing the first ring) and 3 points (peripheral zones).

- Small-sized units also record a decline in central population, (minus 6 points), a reinforcement of the first ring (5 points), whereas the concentration of population in the second ring increases by less than 1 point.

Some crucial trends in urban growth remain important. As in the United-States, the population censuses¹³ show “the remarkable persistence of urban growth” (GLAESER and SHAPIRO, 2003, p.141) and we note similar movements. Very high and strong correlations exist between urban growth rates: 0.75, for the periods 82-90s and the 90-99s; 0.71, for the 75-82s and the 82-90s; and 0.59 for the 68-75s and the 75-82s. However, the French growth rates are weaker than those for the United States; they regularly decline over time and show disparities between size categories (PAULUS and PUMAIN, 2002).

Table 4: Rates of urban growth by city size in France (1962-1999)

Urban Areas (U.A.) Size Categories	1962-68 %	1968-75 %	1975-82 %	1982-90 %	1990-99 %
> 10 millions inhabitants (Paris)	9.1	6.9	2.3	6.1	2.9
Large U.A. > 200 000 inhabitants	12.1	9.8	4.8	5.7	5.5
Large medium-sized U.A. 100 - 199 999 inhab.	9.6	9.5	4.2	3.6	2.8
Medium-sized U.A. 20 - 99 999 inhabitants	8.9	7.8	5.0	4.1	2.2
Very small U.A. < 20 000 inhabitants	6.7	7.8	3.9	3.1	2.3
Total Urban Population	10.3	8.6	4.1	5.2	3.9

Source: Authors estimate from the INSEE censuses.

With regard to the results (Table 4), three aspects marked the French urban growth:

- The first feature is temporal. The evolution of urban areas reveals clear stages: after two periods of intense growth (from the Sixties to the middle of the Seventies), which concern all the categories [evoking a ‘parallel growth’ trend as it is underlined by EATON and ECKSTEIN (1997)], the growth rates obviously decelerate during the next period (1975-1982). The tendency is homogeneous, including Paris, and the size has no really perceptible effect on the trajectories. If the rates are less substantial in the “medium” categories than in the large zones, the differences seem low enough. Thereafter, and except for the level “more than 200 000 inhabitants”, the growth rates slow down: 2 (even 3%) for decade 90. The trend is spectacular in medium-sized urban areas. Whereas their demographic boom had drawn the planners’ attention for better equipping and rebalancing the territory, they seem to have blown their chances during the 15-20 last years, with the profit of large metropolises, which concentrate today nearly 45% of the French urban population and benefit from initial advantages: population, jobs, human capital, equipment etc.

- The second characteristic of urban growth is related to geographical dimensions. During the last 40 years, trends in migrations, economic and social factors can explain the variety of the results, some regions looking more attractive than others. We observe, for example, a “flight” to coastal regions: growth rates are particularly high in Atlantic and Southern places, Vannes, Les Sables d’Olonne, La Rochelle, Arcachon, Fréjus, Draguignan, Istres etc. We note for Beauvais, Compiègne, and a lot of medium-sized cities located in Provence, the influence of the proximity of large metropolitan zones like Paris,

¹³ They correspond to years 1968, 1975, 1982, 1990, and 1999.

Lyon and Marseilles. On the opposite, negative trends often characterize specialized places close to zones of old industrial and harbour traditions (iron and steel works, shipyards, textiles, for example); some are large-sized as Valenciennes, Saint-Etienne, Le Havre or Béthune; others are medium-sized: Cherbourg, Montbéliard, Roanne, Maubeuge, Forbach, St Dizier, Dreux, Montluçon, Montceau-les-Mines, Le Creusot, Mazamet, Tulle etc.

- The last feature concerns the variety of trajectories (GUÉRIN-PACE, 1993; LACOUR and PUISSANT, 2004) that shows an addition of changes over time: growth, decline, reversal... However they don't disturb the stability of the urban system. Medium-sized urban areas too are characterized by disordered changes. We have operated a simple typology of the 212 medium-sized areas according to the persistence (or not) of growth rates. From the empirical case-study developed, four groups can be observed:

- Medium-sized areas that maintains their growth rates during five periods ("established growth", 15% of the category). We find there dynamic cities of the Atlantic Coast, Riviera, and the Alpine Arc (from Valence to Chambéry).
- Medium-sized areas that, while preserving positive rates, fit in the general trend of substantial decline during the three last decades, after having had high levels of growth in the Sixties and Seventies ("slow down growth" 34%).
- Medium-sized areas that are characterized by the same tendency as the former but in a much more accentuated way, the growth rates for the 1990-99 period are negative ("stopped growth" 31%). These entities are located in the North-East of France, and also in English Channel areas, i.e. regions with strong industrial traditions that more or less made a success of their restructuring. It is the same for some cities disseminated in the centre of France that were well-known for industrial specializations.
- Medium-sized areas where divergent paths dominate, without real continuous trend: they could be qualified "disordered growth" areas (20%). Coastal zones and a part of the south of France are significant of this mode of growth. The "stopped" and "disordered growth" models are observed in several areas located south-west, which were pioneer in the implementation of urban contractual policies. Does it mean that they have missed their counter-balance role facing metropolitan attraction or that they have found other dynamics?

The analysis of employment in the "upper metropolitan functions" allows us to suggest some elements of answers.

2.2. Are the "upper metropolitan functions" moving? Empirical findings

Our framework is based on the supply side approach that analyzes the context of highly skilled services from the existing employment, which qualifies the city. They are not dissociated from industries and other service activities, more generally. By definition, the highly skilled services supply applies to the producers, but also to the greatest part of economic activities. Here, we share SASSEN's opinion about producer services, when she writes "It has now become evident that these services are also used in service organization, both in the private and the public sectors" (2001, p.91). The employment corresponding to H.S. services¹⁴ is very tightly linked to the nature, the location and the changes of others activities.

¹⁴ For simplicity, we write HS services for highly skilled services and, latter, UMF for "upper metropolitan functions".

Another aspect of the conceptual framework consists in focusing on jobs that refer to “upper metropolitan functions” rather than to economic sectors in order to take into account the changes in firm’s organization (DURANTON and PUGA, 2005; HALBERT, 2003). The importance of the functions is estimated through the number of jobs concerned. They evoke occupations among the most skilled and/or the most “creative”, which are clustered in large metropolises (DURANTON and PUGA, 2005), and which have the benefit of high incomes: business managers, engineers, researchers and intellectual occupations etc. While acknowledging the importance of historical analyses related to the impact of economic restructuring on urban systems (SUAREZ-VILLA, 1988), we have chosen a cross-approach that estimates possible a resurgence of medium-sized cities through activities coming over “upper metropolitan functions”.

So, a conception of urban development founded on the qualitative changes of jobs, new productive modes, and human capital levels (science and knowledge-based activities; management and production divide, knowledge accumulation) could bring a supplemental benefit to the understanding of disparities resulting from agglomerations economies and urban size effect (HICKS, 1987; HOCH, 1987). Indeed, as CAPELLO and CAMAGNI (2000, p.1483) underline: “In the real world, urban size is not always characteristic of function”.

In France, the concept of “upper metropolitan function” has been defined by the INSEE in order to rank the attractiveness of largest urban areas (BECKOUCHE *et al.*, 1999; BELLIOU and FOUCHIER, 2004). These functions have substantial impacts in terms of urban image, and they play a strategic role in urban growth insofar as they largely imply human capital (EATON and ECKSTEIN, 1997). Corresponding to highly skilled jobs, one supposes that they are both linked to large metropolises and innovative environments (DURANTON and PUGA, 2005; ANDERSSON *et al.*, 2005). Empirically, the estimation of the functions results from the crossing of nomenclature of activities (sectors) and nomenclature of social-occupational groups. In this way, 11 functions are considered; they are “easily identifiable... more presents in cities and they correspond principally to the most of high level of skills ...” (JULIEN, 1995; JULIEN, 2002); they also correspond to jobs that have high decision-making content. So, our analysis concerns the changes observed in these 11 UMF, which are presented according to the size of urban areas. Different from studies aiming at highlighting suburbanisation of tertiary sector activities or changes in location patterns (GASCHET, 2002; BOITEUX-ORAIN and GUILLAIN, 2003; BAUMONT *et al.*, 2004), the growth dynamic of these industries are analyzed at the “urban area” level without distinction between locations in central city or not in central city¹⁵. The data used concern the UMF employment at the “urban area” level for 1990 and 1999 (INSEE census files¹⁶). The content of each “upper metropolitan function” is described in Appendix 1.

The stability of the jobs distribution according to urban size is as remarkable as the stability of the population distribution; for 1999, the share of medium-sized urban areas is almost the same as the share for 1990: about 30% of the total employment (Table 5).

¹⁵ The orders of importance that are observed here, medium-sized urban areas and high skilled jobs in metro functions, are relatively small. So, an intra-urban location analysis would be delicate, considering the very low number of jobs concerned, and the diversity of urban forms in French medium-sized cities.

¹⁶ Tables fms99_au.dbf and fms90_au.dbf

Table 5: Percent of Jobs by Urban Area Size (1990-1999)

Urban Areas Size Categories	1990 (%)	1999 (%)
> 10 millions inhabitants (Paris)	28.8	27.5
Large Urban Areas > 200 000 inhabitants	40.4	41.4
Large medium sized U.A. 100 – 199 999 inhab.	10.1	10.2
Medium sized U.A. 20 - 99 999 inhabitants	17.1	17.2
Very Small Urban Areas < 20 000 inhabitants	3.6	3.7
TOTAL	100.0	100.0

Source: Authors estimate from the INSEE censuses.

Data concerning the jobs related to “upper metropolitan functions” (Table 6) are interesting because they give evidence to the hypothesis on metropolization process, to hierarchical aspects of jobs, and to the distribution of modern activities (HENDERSON, 1997) and their planning implications.

Table 6: Percent of Jobs related to “Upper Metropolitan Functions” in French Urban areas

Urban Areas Size Categories	1990 (%)	1999 (%)
> 10 millions inhabitants (Paris)	50.1	48.8
Large Urban Areas > 200 000 inhabitants	34.7	36.3
Large medium-sized U.A. 100 - 199 999 inhab.	5.6	5.7
Medium-sized U.A. 20 - 99 999 inhabitants	8.0	7.8
Very Small Urban Areas < 20 000 inhabitants	1.6	1.5
TOTAL	100.0	100.0

Source: Authors estimate from the INSEE censuses.

The capital-city, Paris, clearly continues to overshadow the “Province”: half of the UMF jobs are concentrated in Paris urban area. In the same line, an uneven distribution of advanced producer services is observed in England too, London and the South-East of the country focusing the activity (JULEFF, 1993). More generally, the literature is well documented here (NOYELLE, 1995; COFFEY and SHEARMUR, 2002), and large areas are appreciated places: 40% of the total employment, 36% of the UMF jobs¹⁷ (Table 6). The hierarchical distribution of highly skilled jobs and their sensibility to agglomeration economies (POLÈSE and SHEARMUR, 2007) find evidence in France, French metropolitan regions constitute examples of this location model. In comparison, the share of medium-sized areas -13.5% of “metropolitan” jobs- has a symbolic significance.

However, we observe in some medium-sized urban areas the emergence and the growth of “metropolitan” jobs: urban contexts are diverse enough to encourage further analyses.

¹⁷ We indifferently use the terms "metropolitan employment", “metropolitan jobs”, "high skilled employment" and “highly skilled jobs” to describe jobs corresponding to "upper metropolitan functions".

As evoked in the first part of the paper, the growth dynamic of services presents quantitative and qualitative aspects. Then, from 1990 to 1999, total employment and UMF employment have changed on various ways according to the urban size (Table 7).

Table 7: Changes in Employment by Urban Size, 1990-1999 (France)

Urban Areas Size Categories	Total Employment		% change	Metropolitan Employment		% change
	1999	1990		1999	1990	
> 10 millions inhabitants (Paris)	5 089 179	5 117 668	-0.6	815 552	730 096	11.7
Large Urban Areas > 200 000	7 640 085	7 180 435	6.4	606 331	505 310	20.0
Large medium-sized U. A. 100-199 999	3 524 945	3 372 365	4.5	168 696	146 232	15.4
Medium-sized U. A. 20 - 99 999	1 543 986	1 479 618	4.4	56 909	52 189	9.0
Very Small Urban Areas < 20 000.	678 601	643 964	5.4	25 291	23 569	7.3
TOTAL	18 476 796	17 794 050	3.8	1 672 779	1 457 396	14.8

Source: Authors estimate from the INSEE censuses.

Paris urban area continues to lose jobs, whereas they slightly progress in other parts of the urban system, with notable disparities between Paris and large entities (- 0.6% and 6.4%). By contrast, the changes in UMF employment show a greater intensity and a greater heterogeneity. On average, in France, these jobs increased by 14.8% (total employment 3.8%), at the higher level of the urban frame the growth rate is 20.0%, whereas the tendency is attenuated for Paris urban area (11.7%)... or at the lowest level of the urban system (7.3%). Thus, except the specific case of Paris, the rise in the number of metropolitan jobs, which can express a relation between size and agglomeration, is all the more significant as the size increases. The growth rates decrease when one goes down in the urban hierarchy and the smallest rates are observed in the smallest units. As Table 7 shows, medium-sized cities are not absent of the process. The growth rates are respectively 15.4% and 9.0%, and that trend can be qualitatively appreciated by looking at the structure of UMF employment.

The UMF jobs distribution underlines their relative importance by size of areas, their specificities, and their dynamics. The main functions (Table 8) are identified by looking at the concentration of jobs by functions in the urban areas¹⁸, which are ranked, thereafter, by decreasing order¹⁹. For simplicity, 1999 results only are presented.

¹⁸ Ratio between jobs related to the UMF and the total metropolitan employment in the urban area concerned.

¹⁹ Appendix 2 presents the distribution of UMF employment, expressed as percentages.

Table 8: “Upper Metropolitan Functions” Employment (France, 1999)

UMF Rank 1999	> 10 millions inhab. (Paris)	> 200 000 Large U.A.	100 - 199 999 Large Medium-sized areas	20 - 99 999 Medium-sized areas	<20 000 Very small U.A.
1	Producer services	Producer services	Producer services	Producer services	Producer services
2	Research	Research	Trade	Trade	Trade
3	Trade	Trade	Research	Management in Industry	Management in Industry
4	Banking Insurance	Banking Insurance	Management in Industry	Research	Research
5	Art	Management in Industry	Banking Insurance	Art	Art
6	Transport	Art	Art	Telecommunications	Telecommunications
7	Management in Industry	Telecommunications	Telecommunications	Banking Insurance	Trade in Industry
8	Information.	Transport	Transport	Trade in Industry	Bank Insurance
9	Trade in Industry	Trade in Industry	Trade in Industry	Transport	Transport
10	Telecommunications	Information.	Information.	Information.	Information.
11	Data processing in Industry	Data processing in Industry	Data processing in Industry	Data processing in Industry	Data processing in Industry

Source: Authors estimate from the INSEE censuses.

As may be observed, producer services represent the main share of metropolitan employment whatever the urban size. In large entities, the following ranks covers functions requiring important markets such as “Research”, “Trade”, “Banking and Insurance” or “Management”. One can emphasize that the HS jobs related to the “Research” function, which evoke creative jobs requiring “diverse and alive environment” (HENDERSON, 1997, p.601), have a comparable position for the two categories of medium-sized areas (3rd and 4th ranks in 1999). In large medium-sized urban areas, in particular, the function improves its ranking: from 5th to 3rd rank between 1990 and 1999. The behaviour of HS jobs in “Banking and Insurance” is also interesting to underline. In large urban units, these jobs appear in the row of the first five metropolitan functions and maintain there. In medium-sized and small urban areas, “Banking and Insurance” hold a lower rank, compared to other functions such as “Research”, “Art” and “Telecommunications”.

To better specify the distribution of metropolitan employment by size of areas, one can refer to the location quotient values that both express areas and UMF specificities. Over and under-represented activities by category of size are showed in Table 9.

Table 9: UMF* Location quotients values for French urban areas (1990-1999)

«Upper Metropolitan Function»	> 10 millions (Paris)	> 200 000 Large U.A.	100 - 199 999 Large Medium-sized areas	20 - 99 999 Medium-sized areas	<20 000 Very small U.A.
Art	1.04; 1.02	0.90; 0.92	1.03; 1.10	1.26; 1.18	1.14; 1.24
Banking Insurance	1.06; 1.13	0.87; 0.83	1.19; 1.11	0.91; 0.79	0.73; 0.73
Producer services	1.11; 1.15	0.93; 0.89	0.84; 0.82	0.76; 0.73	0.71; 0.68
Trade	0.88; 0.92	1.05; 1.01	1.25; 1.18	1.56; 1.32	1.36; 1.36
Trade in Industry	0.99; 0.90	0.95; 1.03	1.36; 1.17	1.58; 1.43	1.47; 1.53
Management	0.85; 0.76	0.93; 0.99	1.48; 1.61	1.89; 2.13	2.03; 2.29
Information	1.35; 1.34	0.63; 0.66	0.61; 0.71	0.81; 0.79	0.73; 0.73
Data processing in Industry	1.12; 1.10	0.89; 0.96	0.86; 0.77	0.76; 0.76	0.85; 0.82
Research	0.88; 0.78	1.32; 1.38	0.66; 0.82	0.65; 0.75	0.71; 0.79
Telecommunications	0.74; 0.85	1.25; 1.14	1.44; 1.27	1.06; 1.03	0.65; 0.71
Transport	0.97; 0.95	1.03; 1.00	1.02; 1.11	0.9; 1.21	1.18; 1.30

Source: Authors estimate from INSEE censuses. The first number is the 1990 location quotient value; the second is the 1999 location quotient value. *: “Upper Metropolitan Function”

This simple tool highlights specializations. Regarding industrial activities (HENDERSON, 1997), it's a well-known trend, confirmed here in terms of “upper metropolitan functions”. The over-represented activities follow hierarchical order: Paris is marked by the functions “Information” and “Producer services”, and the large cities by “Research”. Concerning medium-sized urban areas, “Management in Industry”, “Telecommunications”, “Trade in Industry”, “Trade”, “Banking and Insurance” and “Art”, are appreciably over-represented.

Taking into account the stability of hierarchies, one can question about the structure of UMF employment²⁰ during the period 1990-1999. Is it stable? Are there reallocations of jobs? The correlation coefficients between 1990 and 1999 UMF jobs distributions, for each category of urban size, specify the changes (Table 10).

Table 10: Composition of the Metropolitan Employment: Stability and Changes (1990-1999)

«Upper Metropolitan Function»	> 200 000 Large U.A.	100 - 199 999 Large Medium-sized areas	20 - 99 999 Medium-sized areas	<20 000 Very small U.A.
Art	0.89*	0.70	0.37	0.44
Banking Insurance	0.88	0.90	0.65	0.62
Producer services	0.79	0.68	0.60	0.56
Trade	0.89	0.75	0.61	0.49
Trade in Industry	0.85	0.81	0.64	0.53
Management	0.93	0.88	0.59	0.67
Information	0.76	0.61	0.46	0.20
Data processing in Industry	0.58	0.60	0.53	0.47
Research	0.90	0.83	0.80	0.74
Telecommunications	0.79	0.91	0.66	0.70
Transport	0.97	0.79	0.71	0.83

Source: Authors estimate from the INSEE censuses.

*: correlation coefficient between 1999 and 1990 series

²⁰ Location quotient is used as a measure of the UMF employment structure for each urban area, which also mitigates the effects of size. The approach is partially inspired of NOYELLE and STANBACK (1984).

If metropolization is defined as a process concerning few large metro areas, the notion can be widely applied. That is the hypothesis structuring our works, according to which the concentration of metropolitan functions could emerge from various levels of urban systems. We called them the local scales of metropolization (LACOUR *et al.*, 2003). The results presented Table 10 testify to what is creating in medium-sized urban areas, a sort of reorganization of places often far away from large metropolises.

With regard to the higher levels of French urban hierarchy, the structure of jobs in the UMF reproduces itself: the correlation coefficients are very high (0.80 to 0.90, except some cases) indicating an important stability of the composition of metropolitan employment during the 90s. We re-find here, over a shorter period, POLÈSE and SHEARMUR (2007) conclusions when they affirm “That does not want to say that the quotients preserved exactly the same values over thirty years, but rather than their relative fitting remained stable”. Comparatively, medium-sized urban areas present weaker correlations between series: 0.40 to 0.60. Without truly speaking about instability, these weaker relations give an outline of the capacities of some cities to develop (or not) HS employment in “creative” and innovating activities. Indeed, it is precisely for functions dedicated to “Art”, “Information”, “Producer services”, in particular, that weaker correlations are noted. One can also see there the capacity of medium-sized areas to adapt themselves (or not) to new economic environment. The identification of the functions concerned with these turbulences leads to precise the on-going dynamics. In many zones, they are adjustment or catch-up phenomena due to an initial low representation of the function. Elsewhere, medium-sized areas would profit then (or not) from a set of agglomeration economies, which allows for reinforced or new specializations.

The analysis of the growth rhythms of HS employment confirms the assumption on the changing structure of metropolitan jobs between 1990 and 1999 (Table 11).

Table 11: Rhythms of Metropolitan Employment Growth in French Urban Areas (1990-1999)

«Upper Metropolitan Function»	Average Growth Rate (%)	> 10 millions (Paris)	> 200 000 Large U.A.	100 - 199 999 Large Medium-sized areas	20 - 99 999 Medium-sized areas	<20 000 Very small U.A.
Telecommunications	69.8	1.28	0.88	0.71	0.81	1.03
Art	29.4	0.81	1.29	1.30	0.50	1.06
Research	27.5	0.36	1.42	2.11	1.47	1.21
Transport	23.5	0.78	1.05	1.49	2.02	1.15
Data processing in Industry	22.1	0.72	1.71	0.45	2.10	0.46
Producer services	19.7	1.05	1.03	0.83	0.46	0.38
Information	17.7	0.75	1.59	2.00	0.49	0.62
Banking Insurance	5.3	1.62	0.83	-0.30	-2.32	-9.51
Trade*	-3.3	0.39	0.89	2.61	2.35	2.97
Management	-7.2	2.63	-0.34	-0.18	0.08	0.34
Trade in Industry	-10.8	2.00	-0.12	0.10	0.10	1.17

Source: Authors estimate from the INSEE censuses.

Medium-sized urban areas do not aim at becoming major economic places, even if one can determine substantial specializations because economies of scale and localization economies have existence (HENDERSON, 1997, p.593). Important populations live and work in that places and their socio-economic dimensions can be original. The growth of UMF

employment does not miss and a majority of urban units profited from it: 80 areas for 93 in class 100 to 199 999 inhabitants; 90 areas for 119 in class 20 to 99 999 inhabitants.

Considering the large disparities of size, it is necessary to take account of this fact in the estimation of metropolitan jobs growth. With ΔX , the jobs growth for the X “upper metropolitan function”, Δx_y the jobs growth in the y medium-sized urban area and x_y the share of y in the X distribution for 1990, one calculates an indicator according to the simple formula: $-(\Delta x_y / \Delta X) / (x_{y90} / X_{90})$ (COFFEY and SHEARMUR, 2002). This simple tool gives the intensity of the jobs growth rate in the urban area “proportionally” to its initial weight within the urban system. The ratios are calculated for the 11 UMF and each urban area.

The results (Table 11) give evidence of the growth dynamic that runs in medium-sized areas, insofar the changes mirror the logic underlying the metropolization process, the idea of creativity and metropolitan qualities too. Over the period, the functions that seem of an intermediate nature such as “Trade”, “Trade in Industry” and “Management” have lost jobs: -3.3%; -10.8%; -7.2%, on average. In medium-sized areas, the trend is accentuated, and they strongly contribute to the decline of the “Trade” function (rhythms are high: 2.61 and 2.35). Concerning “Management”, a function that also lost a lot of jobs, the main area concerned here is Paris, whose rhythm of jobs decline (2.63) is approximately three times more important than on average.

By contrast, certain activities are consolidated, such as “Transport”, which is marked by high rhythms of growth (1.49 and 2.02; the average growth rate is 23.5%). Other functions have developed in remarkable ways, reinforcing high skill and creativity²¹. The rates of jobs growth related to “Art”, “Research” and “Information” are particularly high: 29.4%, for “Art”, 27.5% for “Research” 17.7% for “Information”, on average. In medium-sized areas, their growth rates are also remarkable compared to national means. One can underline in particular:

- The rhythms of growth of the “Research” function: respectively 2.11 and 1.47.
- The development of jobs related to “Information” is primarily observed in large medium-sized urban areas; the growth rate is twice more important than on average (2.00). However, the category 20 to 99 999 inhabitants remains under the national mean. The tendency is similar for the development of the “Art” function, an important rhythm of growth is observed in large medium-sized areas, when smaller areas don’t set apart.
- Finally, the development of the “Producer services” activity tends to approach the rates recorded for the very large metropolises (16.3% - 20%) but the rhythms of growth are not particularly remarkable (0.83). As for “Information”, the tendency only concerns “large” medium-sized areas.

Through these changes, are there only catch-up phenomena or is there more? Is there emergence of a cumulative progress in qualification and creativity (ACS *et al.*, 2002; BERRY and GLAESER, 2005²²), which would be localized in precise places for precise functions?

From the above results, we can expect that some urban areas will be particularly representative of the underlined tendencies.

²¹ The term creativity is used, here, in a very general sense. It means the supposed ability of high skilled workers “to invent” or “to create” in some fields. It does not refer precisely to a number of patents, as CARLINO *et al.*, (2001) ACS *et al.* (2002) or ANDERSSON *et al.* (2005) do, for example.

²² In this article, BERRY and GLAESER suggest a model based on the hypothesis that “places with higher levels of human capital have attracted more skilled people over the last three decades”

2.3. Medium-sized cities as “creative niches” in the service economy

In this last section, we locate medium-sized places where different forces leading to the development of “upper metropolitan functions” exist and overcome the stability of urban hierarchy: we called them “creative niches”.

The method used in this paper has already been tested by COFFEY and SHEARMUR (2002) for the Canadian metropolitan context. It is based on arguments of the literature concerning the relationship between performances in terms of metropolitan growth and “initial conditions”. Insofar as medium-sized areas are well known to be marked by their local environments indeed their ability to be specialized, it seemed to us that the approach could find another interesting application, albeit metropolitan environments are different.

The analysis starts by comparing the initial specialization levels (estimated through location quotients values for 1990) with the indicator of growth presented above. Then, for each function, the ratios of growth are ranked in decreasing order, and one selects the areas that have a ratio higher than 1. Thereafter, this group is ranked according to the location quotients values. It results in 2 groups of cities:

- The first group is composed of medium-sized urban areas characterized by **creative dynamics**: here, the high skilled jobs of UMF have had an intense development during the 90s, especially when the area was already specialized in these functions: growth ratio and location quotient values are greater than 1.
- The second group includes medium-sized areas also characterized by an intense growth of high skilled jobs, but the urban area had no specialization. One qualifies the trend as a **catch-up (adjustment) or compensation dynamics**: growth ratio value is greater than 1; location quotient value is smaller than one.

It is obvious that the other cases composing the suggested typology are also interesting, especially those combining high location quotients values and weak growth ratios²³; may be they could be the object of future analyses.

The dynamics of creativity could give evidence that self-sustained mechanisms are at work in various areas. Table 12 gives an overview of the trend, which concerns a substantial number of areas even if it essentially takes the form of “catch-up” processes.

Table 12: Forms of Metropolitan Growth in French Medium-Sized Urban Areas

“Upper Metropolitan Function	Creative dynamic (number and %)	Catch-up dynamic (number and %)	Other dynamics (number and %)	Total (number and %)
Art	39 - 18	69 - 33	104 - 49	212 - 100
Banking Insurance	20 - 10	62 - 29	130 - 61	212 - 100
Producer services	7 - 3	85 - 40	120 - 57	212 - 100
Information	7 - 3	93 - 44	112 - 53	212 - 100
Data processing in Industry	10 - 5	45 - 21	157 - 74	212 - 100
Research	14 - 7	126 - 59	72 - 34	212 - 100
Telecommunications.	20 - 10	60 - 28	132 - 62	212 - 100
Transport	38 - 18	92 - 43	82 - 39	212 - 100

Source: Authors estimate.

“Trade”, “Trade in Industry” and “Management” functions having lost jobs during the 90s, they are omitted here.

²³ RG<1 and LQ>1 or RG<1 and LQ<1; RG: Ratio of Growth and LQ: Location Quotient.

As regards to the “Art” function, for example, it shows that about half of medium-sized areas are on a metro growth trajectory: more precisely, 18% are in a “creative” dynamics and 33% in a “catch-up” dynamics. The results are interesting insofar they concern “creative” activities, *par excellence*. Sectors and occupations coming under the function are related to industry, producer services as well as to entertainment activities: medium-sized areas are attractive for artists, designers, art craftsmen and managers.

Creativity is also interesting to observe in “Transport”, which indicates the same percentage of medium-sized urban areas engaged in creative dynamics, with an increasing number of high skilled managers, executives, engineers in industries and services related to the function. “Telecommunications” and “Banking and Insurance” give also examples of the tendency, with a lower intensity.

Two other functions - “Producer services” and “Information” - present a similar profile in medium-sized areas: the “creative” dynamics concern very few places (3%) but a lot of them (40 and 44%) are characterized by high rhythms of growth without real specialization in that functions. Here again, high degrees of qualification and creativity can be observed and expected from sectors and occupations such as producer services²⁴, publishing, press, radio and television, activities that are developing outside large entities.

“Data processing in Industry” is an UMF that one rarely finds in medium-sized areas: 5% are concerned by “creative” dynamics and 21% only are in a process of adjustment, the number of jobs related to the function is also very low. The fact that this function mainly covers industry (not always prosperous) could explain the results.

Finally, “Research” is perhaps the most interesting function to underline. Indeed, it reflects an increasing trend in favour of occupations such as engineers, managers, teachers, researchers in public research, liberal professions etc. Then, the catch-up dynamics become general, 59% of the areas are concerned. The function also reflects the impacts of public policies in favour of the location of jobs in “Province”. The trend is obvious in High Education, universities and public research. A lot of medium-sized urban areas have benefit from decentralized and specialized units of education and research, leading, sometimes, to crossed-fertilization with local activities (agro-food, wood, machines industries etc.).

Where are the UMF located?

²⁴ Here the metropolitan function and the corresponding sector-activity have the same appellation.

Table 13: Importance of “creative niches” in French regions (1999)

(1)	(2)Region	(3)Population 1999	(4)MSUA Growth Ratio>1	(5)Art	(6)Information	(7)Research	(8)Producer services	(9)Transport
N	Ile de France	10 952 011	4	1	0	0	0	2
C	Rhône- Alpes	5 645 407	24	17	11	15	11	16
S	PACA	4 506 151	12	5	4	9	5	11
N	Nord-Pas- de-Calais	3 996 588	12	7	7	8	5	5
C	Pays de Loire	3 222 061	12	4	5	9	8	5
S	Aquitaine	2 908 359	10	5	4	8	7	4
C	Bretagne	2 906 197	16	9	8	11	5	5
S	Midi- Pyrénées	2 551 687	12	3	4	8	4	6
S	Languedoc- Roussillon	2 295 648	8	6	5	4	3	7
C	Centre	2 440 329	13	7	5	11	6	8
N	Lorraine	2 310 376	14	4	6	7	3	7
N	Picardie	1 857 481	11	5	5	6	5	5
N	Alsace	1 734 145	4	4	0	2	3	4
N	Haute- Normandie	1 780 192	7	3	4	3	2	3
C	Poitou- Charentes	1 640 068	9	4	5	6	5	7
C	Bourgogne	1 610 067	9	4	5	6	4	6
N	Basse- Normandie	1 422 193	11	5	5	8	5	6
N	Champagne- Ardenne	1 342 363	9	8	6	6	3	7
C	Auvergne	1 308 878	6	3	4	5	1	5
C	Franche- Comté	1 117 059	6	3	4	5	4	3
C	Limousin	710 939	3	0	2	2	1	1
Total		58 258 199	212	107	99	139	90	123

Source: Authors estimate.

(1) C: Central regions; N: Northern regions; S: Southern regions; (4) MSUA: Medium-sized Urban Areas;

(5) to (9): number of areas characterized by the function (creative or catch-up trends).

Focusing on the regional locations of urban areas allows for presenting a kind of “geography of talents” in France. The first conclusion relates to the scarcity of situations only characterized by creative functions: most of the time, French medium-sized areas are engaged in “catch-up” movements or in trajectories combining “creative” and “catch-up” trends. Referring to an ideal of “creativity maximum” in medium-sized areas that could be estimated by the number of areas in a region (with ratio of growth >1) multiplied by 8 (number of “upper metropolitan function” learned²⁵), one observed that the dynamics of adjustment have the same importance whatever the location (18% on average, for Northern, Central and Southern large regions). Very few disparities exist here: Alsace region where the level is higher than average (38%), and Poitou-Charentes where the level is lower than average (7%).

²⁵ The estimation is based on the number of functions represented in each medium-sized urban area. For Alsace, 4 medium-sized urban areas have a ratio of growth >1, the creativity maximum is 4*8=32; for Bretagne it is 16*8=128 etc. See Appendix 3.

However, medium-sized urban areas in Poitou-Charentes are typical of the dynamics combining “creative” trend with “compensation” tendency, which is the dominant pattern for all the regions. Indeed, it characterizes an important majority of medium-sized areas located in Provence-Alpes-Côte d’Azur, Rhône-Alpes, Languedoc-Roussillon, Aquitaine and Alsace, in particular. They both profit from physical *attraits*, strategic location, and metropolitan *savoir-faire* (Marseilles, Lyon, Montpellier, Bordeaux, or Strasbourg). One notes that the best tendencies are observed in medium-sized areas of two small regions²⁶: for Poitou-Charentes, the level of creativity and adjustment is estimated at 50%; for Bourgogne at 38%.

For highlighting the complementarities of creativity and talents, five UMF are analyzed: “Art”, “Information” and “Research” on one hand; “Producer services” and “Transport”, on the other hand. The former functions are crucial for the renewal of medium-sized areas in terms of image, and capacity of adaptation; they testify to a large catch-up tendency concerning high skilled jobs. Results are presented Table 13 by decreasing order of regional population in 1999. Table 13 is an interpretation of Table 12 in spatial terms.

- Concerning “Art”, a majority of medium-sized areas of Alsace, Bretagne, Centre, Champagne-Ardenne, Languedoc-Roussillon, Nord-Pas-de-Calais and Rhône-Alpes has develop the function, showing high degree of creativity in industry and producer services activities, through an increasing number of professions linked to art crafts, entertainments, film and video activities etc. Urban areas such as Colmar, Troyes, Carcassonne, Arras, Armentières, Chambéry or Roanne are remarkable and benefit from the proximity of large markets and metropolises (Strasbourg, Rennes, Paris, Lyon or Grenoble).

- “Information” is precisely located in medium-sized areas of small and rural regions. Champagne-Ardenne, Auvergne, Franche-Comté and Limousin have widely developed the function. Thereafter, the intensity declines but it remains high in Languedoc-Roussillon, Haute-Normandie, Nord-Pas-de-Calais, Bourgogne and Poitou-Charentes. The function is related to press, producer services, and television activities. It can be easily delocalized to answer to spatial compensation and adjustment. Then, information activities can correspond to localizations at lower costs and attractive lifestyle: Epernay, Sedan, Le Puy-en-Velay, Moulins, Belfort, Brive-la-Gaillarde, Carcassonne, Calais, Evreux, Nevers, Mâcon, La Rochelle, Angoulême, in particular.

- As mentioned above, during the 90s, jobs linked to “Research” have been largely spread out on the French territory. Beyond phenomenon of “catch-up” and impacts of public policies, the development of the function represents a crucial element of image for medium-sized urban areas. As for “Information”, the areas testify of activities able to generate “creative niches”, insofar they are clustered with other “upper metropolitan functions”. Here, central or coastal²⁷ regions are the most representative: Rhône-Alpes, Centre, Franche-Comté, Auvergne, Midi-Pyrénées, Aquitaine, Pays de la Loire, Bretagne, Basse-Normandie, Nord-Pas-de-Calais, and Provence-Alpes-Côte-d’Azur. They offer amenities and industrial opportunities (aeronautic, automobile, shipbuilding industries). The urban areas concerned are: Annecy, Chambéry, Roanne, Bourg-en-Bresse, Cluses, Montélimar, Chartres, Bourges, Blois, Châteauroux, Vichy, Montluçon, Moulins, Aurillac, Auch, Montbéliard, Belfort, Agen, Bergerac, Dax, Laval, La Roche-sur-Yon, Lorient, Saint-Brieuc, Quimper, Vannes, Cherbourg, Calais, Arras, Fréjus, Salon-de-Provence etc.

²⁶ Poitou-Charentes population: 1 640 068; Bourgogne: 1 610 067 for 1999.

²⁷ Atlantic and Mediterranean coasts

- Concerning the functions “Producer services” and “Transport”, one observe, for the former in particular, the influence of dynamic contexts characterizing the strong Southern regions. Provence-Alpes-Côte d’Azur, Languedoc-Roussillon, Rhône-Alpes do not block the development of these two functions in medium-sized areas. The same sweeping phenomena and complementarities are observed for Alsace, Poitou-Charentes, Pays de Loire, Aquitaine, Franche-Comté, Centre, and Bourgogne. A lot of areas can be quoted: Colmar, Fréjus, Arles, Manosque, Béziers, Carcassonne, Vichy, Angoulême, Arcachon, Dax, Châlons-en-Champagne, Nevers, Annecy, Roanne, Bourg-en-Bresse, Châlons-sur-Saône, Salon-de-Provence etc.

To synthesize, the locations of urban areas, which are characterized by the combination of jobs “Producer services-Transport-Research” or the combination “Producer services-Telecommunications-Research”, can be identified; they are called “creative niches” (Table 14). The results provide indication on the level of creativity in medium-sized areas, and they show the diversity of locations that seem strongly linked to industrial specializations or to “head down” endowments. If the locations reveal forms of clustering between areas close enough to metropolises, others are dispersed on the whole French territory.

It would remain to study here the economic specialization or the economic diversity of these areas in order to better interpret the geography of creativity and talents. Once again, one would re-find the debates on MARSHALL-ARROW-ROMER versus PORTER and JACOBS externalities, the advantages of one activity concentration in a city versus the diversity of urban fabric.

The existence of “creative niches” close to metropolises gives evidence that the superiority of diversified areas does not stop the development of high skilled services in medium and small sized areas. The growth process seems selective enough, various factors, apart from the size, operate. Technological trajectories, network integration, institutional contexts, talents, territorial identity, and quality could lead to synergies of competences and knowledge (FLORIDA, 2002, 2005; LACOUR and GASCHET, 2007).

Table 14: “Creative niches” in French medium-sized urban areas (1999)

Region	Urban Areas with “creative niches”
Nord Pas de Calais	Calais, Saint-Omer, Merville
Lorraine	Sarreguemines, Sarrebourg
Picardie	Beauvais
Alsace	Colmar, Haguenau
Basse Normandie	Lisieux, Vire, L’Aigle
Champagne-Ardenne	Vitry le François
Rhône-Alpes	Annecy, Valence, Romans/Isère, Vienne, Voiron, Oyonnax, Montbrison
Pays de Loire	Laval, Saumur
Bretagne	Lorient, Saint-Malo, Pontivy
Centre	Chartres, Bourges, Châteauroux
Poitou-Charentes	Niort, Châtellerauld, Thouars
Bourgogne	Chalons sur Saône, Sens, Le Creusot
Franche-Comté	Montbéliard, Belfort, Dole
Limousin	Brive la Gaillarde
PACA	Salon de Provence, Draguignan, Istres
Aquitaine	Périgueux, Dax, Villeneuve sur Lot, Libourne, Marmande
Midi-Pyrénées	Albi
Languedoc-Roussillon	Béziers

Source: Authors estimate.

The geographical proximity of various medium-sized urban areas has to be underlined. It concerns zones, which are also part of professional networks. Aquitaine, Bourgogne, Centre, Franche-Comté, Poitou-Charentes are examples of regions and zones, which discover the advantages of co-operation and network externalities (CAPELLO and CAMAGNI, 2000; LACOUR and GASCHET, 2007). One can add here the role of local contexts indeed historical environments: “To learn about the useful inventions of yesterday, firms must go to these hot spots of inventive activity” (HENDERSON, 1997, p.593). For example Le Creusot, Lorient, Montbéliard, Sarreguemines, L’Aigle, Laval, Niort, Oyonnax etc.

Reading about the results, one has to keep in mind their relativity: period of time is short and all the medium-sized urban areas are unevenly concerned. Qualitative effects are analyzed and the identification of UMF employment cores lead to qualify them as “niches” to suggest the extent of tendencies. With the image of what could be observed on the North-American continent (BRETAGNOLLE *et al.*, 2007), may be will one speak in the future about effects of “sites” instead of “niches” to approach the revival of medium-sized urban areas? May be a relative re-distribution of the “upper metropolitan functions” is taking place within medium-sized urban areas, they are not absent from UMF, a lot of them are in a growth dynamic process and the results emphasize the role of agglomeration, proximity of large entities and metropolitan “atmosphere”.

However, questions remain: are the economies of medium-sized urban areas diversified enough? Have they generated sufficient externalities for being more attractive and competitive as suburban areas have done for large metropolises (GARREAU, 1991; COFFEY and SHEARMUR, 2002)?

3. Concluding remarks: a pragmatic challenge for territorial planning and urban development

This paper presents some performances of medium-sized areas regarding “upper metropolitan functions”. Our approach is at a stage of identification of the main trends, it is only descriptive and comparative. Our aim was not to explain the evolution of these places by the changes in metropolitan employment in the line of research as GLAESER *et al.* (1992) or HENDERSON (1997) have done with industrial structures, for example. The question: “could the UMF predict the growth of medium-sized cities?” largely remains to explore and test for the French urban frame even if various works related to the geography of innovation could be usefully applied (LACOUR and GASCHET, 2007).

The propensity of medium-sized cities to be specialized in a small number of activities, often industrial, is recognized by the literature but the question of their influence on metropolitan employment remains asked. If, innovation and knowledge industry has significant impact on the development of creative activities, one can suppose a larger attractiveness of the urban areas concerned with the growth of advanced services. The precursory model of NOYELLE and STANBACK (1983) brought original elements, on the matter, by proposing a functional typology of cities based on six separate types of advanced service activities. Considered descriptive, the approach of urban structures is “appealing”, however, it was tested on a broad scale, and it has marked the first steps of later works; in Europe, it will inspire part of RESER’s research, in particular those of LEO and PHILIPPE (1999; 2005).

The paper has described the “upper metropolitan functions” regarding French medium-sized urban areas and the results show both progresses and failures. Art, producer services, research etc. require high skilled jobs mainly concentrated in large metro areas, but that seem to agglomerate in medium-sized cities too. Conclusions about the concentration of UMF in large metro areas and the decentralization of day-to-day services in medium-sized cities correspond to an admitted spatial pattern. Scales are different, but through spatial proximity, networks, various forms of relationships, we have emphasized the existence of “creative” niches at medium-size levels.

The approach could suggest some theoretical answers regarding the diffusion of “upper metropolitan functions” and some operational answers related to the role of certain activities or certain places, where the observation of changes can evokes potential forces of development: may be medium-sized urban areas could be able to catch-up metropolises.

The analysis could be enriched by considering others types of medium-sized areas, especially those that are specialized in “upper metropolitan functions” and for which bad growth rates have been noted.

One could also extend the geographical framework and suggest comparisons with other countries to highlight a possible influence of local contexts and national cultures.

Furthermore, the role of metropolitan functions in the vitality of medium-sized areas seems critical for territorial planning. The presence of “upper metropolitan functions” proves a capacity of adaptation that could overcome the single size factor.

Finally, two methods are offered to medium-sized urban areas:

- To follow deliberately metropolitan functions in urban spaces and urban sets, which remain “under” or not metropolized in the primary sense of the term “metropolitan”. Examples exist for Germany, for the United States, they seem difficult to apply to France, except for singular services, may be in the form of “creative niches”.

- To preserve and reinforce technological quality, and a good image of traditional functions in areas that have a low level of centrality. One will be based on the imitation, the adjustment in activities related to day-to-day services and producer services. Education, applied research, and counselling services more generally will be also retained. One will seek to reach the metropolitan standards for basic services on traditional markets of employment. Without falling into “a provincial Romanticism” (LAJUGIE, 1974, p.43), appealing and often suggested by the ultra-urban or the neo-urban populations (LACOUR and PUISSANT, 2007), one can wish “neither skyscrapers, nor China’s walls in the medium-sized cities” (LAJUGIE, 1974, p.168), but a major central attention.

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Appendix 1 : « Upper metropolitan Functions » :Definition

(Source: JULIEN, 1995, pp. 414-422; INSEE, 2002²⁸)

Function	Sector Activity	Profession
Art	Industry	Art craftsmen
	Producer services	Literary authors, scriptwriters, screenwriters, Artistic entertainment managers, Technical managers in production of live and audiovisual entertainments, Modelling artists, Professional artists in music and singing, Dancers and Dramatic artists, Teachers of art (out schools), Variety artists
	Film and video activities, other entertainment activity	Independent managers of entertainment, or light entertainment services 0-9 salaried workers, Company managers with 10 or more salaried workers, Administrative and sale company managers, Engineers and technical company managers.
	Any other sectors	Artistic managers of shows, Modelling artists, Professional artists in music and singing, Dancers and Dramatic artists, Teachers of art (out schools), Variety artists.
Banking Insurance	Financial intermediation and insurance	Company managers with 10 or more salaried workers Liberal professions Administrative and sales company executives Company engineers
Trade	Wholesale trade and intermediates	Wholesalers, Company managers with 10 or more salaried workers, Company engineers and professionals Administrative and sales company managers, Engineers and technical managers etc.
Trade in Industry	Industry	Product managers, commercial buyers and other marketing executives, Sales executives of large companies, Commercial managers of small and medium-sized companies,

²⁸ Precise nomenclature by codes can be presented, with NAF (activities) and PCS (professions) nomenclatures. Appendix 1 indicates examples of content of the various codes.

		Publicity executives, public relations executives Engineers and sales executives in building and public works Engineers and sales executives in electrical equipment, professional electronics etc.
Management in Industry	Industry	Company managers with 10 or more salaried workers, Senior administrative management executives, business finance managers of large companies, Managers in charge of economic, financial and commercial studies Specialist managers of recruitment and training, Engineers and maintenance managers of new works etc.
Information	Press, newspapers, publishing Press agencies	Company managers with 10 or more salaried workers, Engineers and professionals etc.
	Producer services	Journalists, editorial secretaries Professionals related to press, publishing, audiovisual etc.
	Radio, broadcasting and television	Company managers with 10 or more salaried workers, Engineers and professionals etc.
Data processing in Industry	Industry	Engineers and specialist executives in data processing (except sales technicians)
Research	Industry	Engineers and technical managers (research and development)
	General administration	Teachers, researchers in public research
	High education (Universities)	Liberal professions, Civil services managers, teachers, engineers etc.
Producer services	Producer services	Company managers with 10 or more salaried workers, Engineers and professionals, excepted professionals related to Art and Information functions.
Telecommunications	Telecommunications and Post Office	Company managers with 10 or more salaried workers, Civil services executives, Company administrative and sales executives, Engineers and technical company executives etc.
Transport	Transport and services related to transports	Company managers with 10 or more salaried workers, Engineers and professionals, Engineers and technical company executives, Company administrative and sales executives etc.
	Industry	Transport and logistic executives, Technical flying personnel in civil aviation Officers in the merchant marine.

Appendix 2: Structure of jobs related to “upper metropolitan functions” by size of Urban Areas in France (1990-1999)

“Upper Metropolitan Function”	Paris > 10 millions		Large Urban Areas > 200 000		Large Medium-sized UA 100-199 999		Medium-sized UA 20-99 999		Very small UA. < 20 000		Total	
	1990 %	1999 %	1990 %	1990 %	1990 %	1999 %	1990 %	1999 %	1990 %	1999 %	1990 %	1999 %
Art	6.2	6.9	5.3	6.1	6.2	7.4	7.5	7.9	6.8	8.4	6.0	6.7
Banking Insurance	9.8	9.5	8.0	7.0	10.9	9.3	8.3	6.7	6.7	6.1	9.2	8.4
Producer services	33.6	36.3	28.1	28.2	25.6	25.8	23.1	23.2	21.6	21.7	30.3	31.6
Trade	11.9	10.6	14.2	11.5	17.0	13.5	17.8	15.1	18.5	15.5	16.6	11.4
Trade in Industry	5.5	3.9	5.3	4.4	5.9	5.0	6.8	6.2	8.2	6.6	5.6	4.3
Management in Industry	6.6	4.8	7.3	6.2	11.6	10.2	14.8	13.5	15.9	14.5	7.8	6.3
Information	4.4	4.5	2.1	2.2	2.0	2.4	2.6	2.6	2.4	2.5	3.3	3.3
Data processing in Industry	2.1	2.2	1.7	1.9	1.6	1.5	1.4	1.5	1.6	1.6	1.9	2.0
Research	12.3	12.1	18.6	21.5	9.4	12.8	9.1	11.7	9.9	12.3	14.0	15.5
Telecommunications	2.2	3.7	3.6	4.9	4.2	5.5	3.1	4.4	1.9	3.0	2.9	4.3
Transport	5.3	5.6	5.7	5.9	5.6	6.6	5.3	7.1	6.5	7.7	5.5	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Appendix 3: Dynamics of « Upper metropolitan functions » in French medium-sized areas (1999)

(1)	(2) Region	(3) Population 1999	(6) Creative only %	(7) Catch- up only %	(8) Creativity+ Catch-up %
N	Ile de France	10 952 011	3	0	13
N	Nord-Pas-de-Calais	3 996 588	0	25	16
N	Lorraine	2 310 376	0	17	17
N	Picardie	1 857 481	0	18	24
N	Haute-Normandie	1 780 192	4	20	18
N	Alsace	1 734 145	0	38	31
N	Basse-Normandie	1 422 193	2	17	25
N	Champagne-Ardenne	1 342 363	0	24	29
North		25 395 349	1	20	21
C	Rhône-Alpes	5 645 407	0	17	36
C	Pays de Loire	3 222 061	0	23	23
C	Bretagne	2 906 197	2	15	29
C	Centre	2 440 329	0	20	28
C	Poitou-Charentes	1 640 068	0	7	50
C	Bourgogne	1 610 067	0	13	38
C	Auvergne	1 308 878		13	27
C	Franche-Comté	1 117 059	0	21	25
C	Limousin	710 939		25	17
Central		20 601 005	1	17	32
S	PACA	4 506 151	0	10	36
S	Aquitaine	2 908 359	0	17	34
S	Midi-Pyrénées	2 551 687	0	19	31
S	Languedoc- Roussillon	2 295 648	0	23	18
South		12 261 845	0	17	29
Total		58 258 199	1	18	28

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